

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF: Hiroshi AKAMIZU, et al.

SERIAL NO: New Application

GAU:

FILED: Herewith

EXAMINER:

FOR: HIGH-STRENGTH STEEL SHEET HAVING EXCELLENT WORKABILITY AND PRODUCTION PROCESS THEREFOR

**INFORMATION DISCLOSURE STATEMENT UNDER 37 CFR 1.97**

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

SIR:

Applicant(s) wish to disclose the following information.

**REFERENCES**

- ☒ The applicant(s) wish to make of record the references listed on the attached form PTO-1449. Copies of the listed references are attached, where required, as are either statements of relevancy or any readily available English translations of pertinent portions of any non-English language references.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

**RELATED CASES**

- ☐ Attached is a list of applicant's pending application(s) or issued patent(s) which may be related to the present application. A copy of the patent(s), together with a copy of the claims and drawings of the pending application(s) is attached along with PTO 1449.
- ☐ A check is attached in the amount required under 37 CFR §1.17(p).

**CERTIFICATION**


- ☐ Each item of information contained in this information disclosure statement was first cited in a communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this statement.
- ☐ No item of information contained in this information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application or, to the knowledge of the undersigned, having made reasonable inquiry, was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this statement.

**DEPOSIT ACCOUNT**

- ☒ Please charge any additional fees for the papers being filed herewith and for which no check is enclosed herewith, or credit any overpayment to deposit account number 15-0030. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, P.C.



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**STATEMENT OF RELEVANCY**

**Reference AO on Form PTO-1449:**

1. Japanese Pat. JP-A-2-97620 (1990)

explained in the specification

PURPOSE: To obtain the title low-carbon high-strength steel sheet having excellent workability by hot-rolling a steel having specified contents of C, Si, Mn, Ni, Al, and Fe, then cold-rolling, heat-treating, and cooling the steel under specified conditions.

CONSTITUTION: A steel contg. 0.07-0.30wt.% C, 0.30-1.50wt.% Si, 0.20-2.00wt.% Mn, 1.00-6.00wt.% Ni, 0.005-0.100wt.% SolAl,  $\leq 1$ wt.% of  $\geq 1$  kind among Cu, Co, and Cr as required, the balance Fe, and inevitable impurities is hot-rolled. The hot-rolled steel sheet is pickled, and then cold-rolled at 35-80% draft. The cold-rolled steel sheet is then heated to a two-phase coexistent temp. region at 600-800 deg.C, and kept at that temp. for 15sec to 5 min. The steel sheet is then cooled to 250-500 deg.C at a rate of 1-200 deg.C/sec, and kept at that temp. for 5sec to 10min. The cooling is preferably carried out at a rate of 1-20 deg.C/sec to 550-700 deg.C, and then at a rate of 25-200 deg.C/sec. The steel sheet is subsequently cooled to  $\leq 150$  deg.C for  $\leq 30$ sec. As a result, a high-strength steel sheet having excellent workability is obtained.

**Reference AP on Form PTO-1449:**

2. Japanese Pat. JP-A-5-255799 (1993)

explained in the specification

PURPOSE: To manufacture a hot dip plated high strength steel sheet having excellent workability by prescribing the specified componental compsn., micro structure and workability and providing the surface plated layer.

CONSTITUTION: This steel is constituted of, by weight, 0.05 to 0.20% C, 0.1 to 3% Si, 0.5 to 3% Mn,  $\leq 0.01\%$  S, 0.005 to 0.1% Al and Fe as essential components. As for the micro structure of the steel sheet, it contains no worked ferrite and pearlite and contains one or  $\geq 2$  kinds among bainite, martensite and retained austenite. As workability, it has TSXT.El  $> 18000$  (MPa.%) and TS  $> 440$  (MPa). A plated layer or an alloying plated layer is formed on the surface of the steel sheet. The peeling condition of the plating after working is evaluated by a drop weight type DUPONT impact testing machine shown in figure. In this way, its high strength and rust prevention can be satisfied.

Form PTO 1449  
(Modified)U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO.

239964US0

SERIAL NO.

New Application

## LIST OF REFERENCES CITED BY APPLICANT

APPLICANT

Hiroshi AKAMIZU, et al.

FILING DATE

Herewith

GROUP

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						
	AL						
	AM						
	AN						

## FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	TRANSLATION	
					YES	NO
	AO	2-97620	4/10/90	Japan		X
	AP	5-255799	10/5/93	Japan		X
	AQ					
	AR					
	AS					
	AT					
	AU					
	AV					

## OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, etc.)

	AW	
	AX	
	AY	
	AZ	<input type="checkbox"/> Additional References sheet(s) attached

Examiner

Date Considered

\*Examiner: Initial if reference is considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.